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HICPAC GUIDANCE ON PUBLIC REPORTING OF HEALTHCARE-ASSOCIATED INFECTIONS (HAIs) – September 10, 2004

Executive Summary

Introduction:

Health-related information including the performance of healthcare providers has become increasingly accessible to consumers through electronic and print media over the past decade. Many state and national initiatives are currently underway to mandate or induce healthcare organizations to publicly disclose information related to institutional and physician performance. Few of the existing report cards on hospital performance address healthcare-associated infections (HAIs). To date, mortality resulting from community-acquired pneumonia or surgical site infection are the most frequently employed quality indicators for infectious diseases. Four states, Illinois, Pennsylvania, Missouri and Florida have enacted or are considering legislation to publicly disclose HAI rates. Legislative efforts are currently underway in other states to create public reporting systems for HAIs.

Goals of this guidance:

The purpose of this document is to provide evidence-based recommendations on public reporting of HAIs. In developing these recommendations, two CDC health services researchers (LM, GF) designed a systematic literature review to answer two questions of greatest importance to HICPAC. The primary question was whether public reporting systems are effective in improving health care performance using either clinical process measures or measures of patients' health as the intended outcomes. A secondary question

was whether private reporting systems are effective in reducing HAIs. The selected literature was not analyzed for the indirect or intermediate effects of public reporting systems, such as changes in the behavior of consumers or purchasers, or quality improvement activities in health care settings not linked to clinical performance or health outcomes. The complete methods and discussion of the results are reported elsewhere {manuscript}.

Because there are settings where mandatory, public reporting of HAIs is in development or under consideration, a separate review of selected epidemiologic studies of the methodology of public health surveillance of HAIs was conducted (JT,TH) to make practical recommendations to improve the intra- and inter-hospital comparability of HAI rates reported publicly.

This document summarizes the findings of the review of selected epidemiologic literature and provides the consensus opinion of the Healthcare Infection Control Advisory Committee (HICPAC). HICPAC was established in 1991 to provide advice and guidance to the Secretary, Department of Health and Human Services (DHHS); the Director, Centers for Disease Control and Prevention (CDC); and the Director, National Center for Infectious Diseases (NCID), CDC; regarding the practice of infection control and strategies for surveillance, prevention, and control of HAIs (e.g., nosocomial infections) and related events in healthcare settings. HICPAC advises CDC on guidelines and other policy statements regarding the prevention of HAIs.

This document was co-sponsored by the Association for Professionals of Infection Control and Epidemiology, Inc, the Council of State and Territorial Epidemiologists, and

the Society for Healthcare Epidemiology of America and was reviewed by experts in infection control, healthcare policy, etc. The recommendations are endorsed by…

The preponderance of the available information on HAIs is derived from acute-care hospitals. However, the topics and general principles addressed in the document are applicable to the majority of health-care settings in the United States. This document is intended for use primarily by policymakers and organizations tasked with designing and implementing public reporting systems for HAIs.

Effectiveness of Private Reporting Systems to Reduce HAIs

In the 1970's, the landmark Study of Efficacy of Nosocomial Infection Control (SENIC Project) demonstrated that to be effective, nosocomial infection control programs must include the following components: organized surveillance and control activities, an adequate number of trained infection control staff, and a system for reporting surgical site infection rates to surgical teams (SSIs) (3;4). The SENIC Project still serves as the basis for current standards of practice in hospital infection control and prevention programs, including HICPAC's 1999 recommendations to feedback SSI rates to surgical teams to prevent SSIs in hospitals (2). CDC's systematic literature review of studies published since 1995 found only one study of private reporting of HAIs, but inter-hospital comparisons were precluded by the risk-adjustment methodology (5;6). During 1990-1999, CDC reported decreases in the incidence of device-associated infections in NNIS hospitals (7). While anecdotal reports suggest that participating in an organized ongoing

surveillance system stimulates infection prevention efforts, these results have not been rigorously evaluated (8).

Healthcare Surveillance and Applicability to Public Reporting Systems:

When developing a reporting system for HAIs, developers should first determine the objectives and priorities of the system. In general, the system should collect and report data that are both relevant and valid. These goals are achieved by identifying appropriate events to monitor, adopting standardized case-finding methods, providing needed infrastructure and resources, validating data, calculating appropriate and risk adjusted rates, and producing reports of use and interest to their intended audience.

Identifying Appropriate Events to Monitor:

Events should be chosen for inclusion in a system based on their frequency, severity, preventability, and the likelihood that they can be detected and reported accurately (9). Candidate events are identified in Table 1a. Standardized definitions should be used for all events included in a reporting system.

The CDC NNIS system has definitions for 13 major-site HAIs (4). The four most common are bloodstream infections, urinary tract infections, pneumonia, and surgical site infections (Table 1a); together these four comprise about 83% of HAI (CDC, unpublished data). A fifth HAI, Clostridium difficile-associated disease is increasing in frequency (10) and should be considered for reporting as well. Tracking other HAI is not recommended because each comprises only a small proportion of total HAI, methods of

risk adjustment are not well delineated, and monitoring these infections is thought to have little prevention effectiveness.

Antimicrobial resistance has been termed "a paramount microbial threat of the twenty-first century" (11) and can be identified objectively from microbiology laboratory reports (Table 1a). NNIS provides for collecting aggregate ward-specific data on antimicrobial susceptibility (4). Data on individual patients infected or colonized with antimicrobial resistant organisms is collected at some hospitals (12;13), but methods to perform such surveillance are not standardized.

Monitoring process measures, i.e., measures of compliance with recommended infection control practices, is an alternative with several advantages (Table 1a). Additionally, monitoring both outcome events and process measures and assessing their correlation is an exciting approach to quality improvement. While less well standardized, protocols for collecting process measure data have been implemented and are being developed by CDC for national reporting (14;15).

The National Quality Forum (NQF) uses a consensus process involving quality improvement and scientists, purchasers, providers, and consumers to generate standardized measures of health care quality that can be useful for voluntary public reporting (16). NQF has adopted several measures as national patient safety measures in hospital, specifically for voluntary public reporting (17). These include three outcome events, ventilator-associated pneumonia, central line-associated bloodstream infections,

and urinary catheter-associated urinary tract infections, as defined by CDC/NNIS; these NQF-endorsed NNIS measures include full specifications, such as case definitions, risk-adjusters and definitions of denominator populations. The NQF also endorses three process measures, surgical antimicrobial prophylaxis (i.e., agent, timing, duration); hand hygiene; and central venous catheter insertion practices (i.e., use of maximal barrier precautions, chlorhexidine skin antisepsis). In a separate report, NQF endorsed safe practices for hospitals that map to some of these measures (18) . Details regarding the NQF consensus process are available at www.qualityforum.org.

The federal Agency for Healthcare Quality and Safety (AHRQ) has developed a system of 20 hospital-level Patient Safety Indicators, two of which relate to HAI (postoperative sepsis and selected infections due to medical care) (19). Software can be downloaded that finds these indicators from hospital discharge ICD-9 codes. These indicators were proposed by AHRQ only as screening tools that may help target further data collection and analysis.

Case-Finding:

It is important to identify the population at risk for events and adopt standardized methods for case-finding. Standardized case-finding methods help to reduce "surveillance bias," i.e., the finding of higher rates at institutions that do a more complete job of identifying events. Incentives to find cases are helpful. Conversely, adverse consequences for hospitals that report high rates may encourage underreporting; for this reason, reporting of HAI is voluntary under the CDC NNIS system.

Events may be difficult to identify because of decreasing length of hospital stay and transfers to other facilities. Case-finding strategies are more straightforward for infections that are primarily defined by laboratory tests (e.g., bloodstream infections) than those that are more dependent on clinical criteria (e.g., pneumonia; Table 1a). Finding surgical site infections is challenging, since 50% present after hospital discharge (4). Substantially more such infections are found when administrative data sources, such as discharge diagnoses and antimicrobial receipt, are used to flag charts for careful review (20).

Resources and Infrastructure Needed for a Reporting System:

A reporting system cannot produce quality data without adequate resources. At the institution level, trained infection control professionals that have dedicated time to find and report events are required. At the system level, needed infrastructure includes instruction manuals, training materials, data collection forms, methods for data entry and submission, databases to receive and aggregate the data, appropriate quality checks, computer programs for data analysis, and standardized reports for dissemination of the results. Computer resources include hardware and software and a standard user interface. To collect detailed data on factors such as service (e.g., general medicine, general surgery), location at the facility, and surgical procedure type, extensive data dictionaries and coding schema must be developed and maintained.

Creating a new reporting system requires considerable planning and attention to detail. If this is contemplated, it is well to use standardized elements (e.g., definitions) wherever possible, develop methods in collaboration with personnel experienced in healthcare epidemiology, introduce various components in phases, and pilot test the system in small numbers of facilities before widespread use.

Validation of Data:

Routine verification of the validity of data is ideal but labor-intensive, as illustrated by CDC's pilot study of the accuracy of reporting to the NNIS system (21). Eighteen hospitals with typical infection rates were initially selected, but because of resource limitations, only nine were actually studied. Of the nine, five were replaced because they were unable to produce a needed list of patients or charts were not available. This study evaluated the ability of hospitals to use NNIS methods and was not a comparison to external gold standard definitions or methods. In phase I, data collectors reviewed a sample of charts at nine intensive care units and reported many more infections than had been originally reported by hospital personnel. In phase II, CDC personnel revisited the hospitals and reviewed charts with discordant results, to produce final estimates of sensitivity of 59-85% and positive predictive value of 72-87% (Table 1a). This study was performed over a three-year period and required the efforts of CDC personnel as well as an external contractor.

When making inter-hospital comparisons, it is important to understand how the accuracy of case-finding varies among hospitals. In one study, the sensitivity of routine hospital

surveillance for surgical site infections following cardiac bypass procedures varied from 41% to 85% among nine hospitals (22). A study of detection of bloodstream infections showed that sensitivity was 67% and positive predictive value 62% at a larger hospital; at a smaller hospital for which less data were available, the values were 56% and 42%, respectively (23).

The accuracy of case-finding using ICD-9 discharge codes has not been well studied and probably varies by HAI type as well as hospital. In one study, the code for sepsis had a positive predictive value of 38% for nosocomial sepsis; this study used mention of sepsis on the dictated discharge summary as the gold standard and did not evaluate sensitivity (24). For finding "post-operative sepsis," discharge coding had a sensitivity of 37% and predictive value positive of 30% (25). However, ICD-9 codes may be better predictors of surgical site infection when full chart review using CDC/NNIS definitions are used as the gold standard. A recent study using these methods reported that ICD-9 codes had a sensitivity of 48-78% and a positive predictive value of 58-86% for infections following coronary artery bypass surgery, Cesarean section, and breast surgical procedures (22). In summary, while possibly useful for supplementing other data or for flagging charts for further review, ICD-9 discharge codes should not be relied upon as the primary data source for public reporting systems.

Event Rates and Risk Adjustment:

A key objective of a multi-hospital system such as NNIS is to have comparable and reliable estimates of infections so that a hospital or hospitals with potentially under-

performing units can identify and correct the situation. The validity of the inter-hospital comparisons is critical to estimating the performance of a particular hospital in preventing HAIs.

Simple counts of cases of wrong-site surgeries performed in a hospital could provide meaningful information to consumers, purchasers and other stakeholders, while counts of HAIs in the same hospital might be, at best, meaningless, or at worst, misleading. For most events, a minimum standard is to collect denominator data and report event rates per 100 patient admissions or 1000 patient-days. Additionally, it is preferable that event rates be risk-adjusted for the potential differences in patient-level risk factors, especially for inter-hospital comparisons. Risk adjustment methods used in the NNIS/NHSN system, summarized in Table 1a, are widely accepted. These methods do not incorporate all potential confounding variables and represent a compromise.

While providing better rates for comparison purposes, risk adjustment greatly increases workload, since data must be collected on the entire population at risk rather than only the fraction with HAI. Few studies have examined the difference between simple (i.e., not risk adjusted) vs risk-adjusted rates (26;27). Risk adjustment cannot correct for variability among data collectors in accuracy of finding and reporting events. Current risk adjustment methods improve but do not guarantee the validity of inter-hospital comparisons, especially comparisons involving diverse patient populations e.g., comparing community to tertiary care hospitals.

CDC (4) and other authorities (28) no longer recommend collection or reporting of hospital-wide overall HAI rates. This is because collecting hospital-wide data is very labor intensive, HAI rates are low in many hospital locations making routine inclusion of these units unhelpful, and methods for hospital-wide risk adjustment have not been developed (29). Rather than hospital-wide rates, reporting rates of specific HAI for specific hospital units, or procedure-specific rates of surgical site infections, is recommended. Thus, data collection is concentrated in populations where HAI are more frequent and rates are calculated that are more useful for targeting prevention and making comparisons among facilities or within facilities over time.

Meaningful event rates are facilitated by selecting events that are frequent enough and populations at risk large enough to produce adequate sample sizes. Unfortunately, stratification, e.g., calculation of rates separately in multiple categories, for purposes of risk adjustment may lead to small numbers of HAI in any one category and unstable rates.

Producing useful reports:

Publicly-released reports must be crafted to convey scientific meaning in a manner that is useful and interpretable to a diverse audience. Collaboration between subject matter experts, statisticians, and communicators is necessary in developing these reports. The reports should highlight potential limitations of both the data and the methods used for risk adjustment. In a new reporting system, data should be examined and validated as

possible before initial release; sufficient data should be accumulated to yield stable rates before public release, a process that may take months or years.

Future Directions:

Healthcare surveillance using standard methods has recorded many successes and is cited as a model for prevention (30). However, alternate approaches may improve healthcare surveillance by reducing complexity, decreasing the burden of data collection, and improving accuracy (31). These alternate approaches include adopting simpler methods (32) and more objective definitions, using sampling and estimation (27), and substituting information in computer databases for manually collected data (33). When more fully developed, these methods may be a useful addition to standard monitoring methods.

CDC-Sponsored Healthcare Surveillance Systems

Some states that are considering the public release of hospitals' HAI data are looking to CDC's National Nosocomial Infections Surveillance system as a model or guide. Patient safety leaders, such as Dr. Lucian Leape, have recognized the CDC system as a model patient safety reporting system that should be expanded to all hospitals and other patient safety problems or topics (30). To assist stakeholders to better understand its basic characteristics and epidemiologic underpinnings, a brief overview and historical description of the CDC system are provided with a more detailed description of how this system works and how it is being transformed into a modern knowledge management system, called the National Healthcare Safety Network (NHSN).

Background:

The NNIS system was developed in the early 1970s to monitor the incidence of HAIs and their associated risk factors and pathogens. It is the only national system for tracking HAIs. The NNIS system is based on a cooperative, non-financial relationship between hospitals and CDC. This voluntary reporting system has grown from about 60 hospitals at inception to over 300 at its peak, and has evolved over time to incorporate new science and best practices. The growth of the NNIS system has been constrained by information technology and personnel resources, both at CDC and in the hospital industry. However, the NNIS system is currently undergoing a major redesign as a web-based knowledge management and adverse events monitoring system scheduled for release to participating hospitals in late 2004, and to all other hospitals, long-term care facilities and other health care organizations by 2006. Once released, expansion to new areas of patient safety monitoring and evaluation are planned for the future. CDC's Division of Healthcare Quality Promotion manages the NNIS system and posts many of its publications on the Division's website, www.cdc.gov/ncidod/hip, including descriptions of participating hospitals currently participating and current trends in the types of adverse events that are monitored (34).

Program goals and requirements:

CDC developed the system to help infection control professionals and hospitals stay abreast of the rapidly expanding science and practice of infection prevention and control, and to better manage endemic and epidemic episodes of HAIs. The principles of the original system are based upon CDC's definition of public health surveillance with four

steps: 1) detect and monitor adverse events, 2) assess risk and protective factors, 3) evaluate preventive interventions and 4) feedback information to event reporters and stakeholders and partner with them to implement effective prevention strategies. To date, CDC has required participating hospitals to have: 1) sufficient infection control personnel resources to collect the data through validated protocols and 2) a large enough bed size to have sufficient cases of targeted adverse events for reliable estimation of the incidence and trends over time (35). The new NHSN will drop these requirements in order to expand access to the system as previously described.

Data uses and confidentiality:

CDC collects data on HAIs as part of its responsibility for research and investigation as authorized under Title III, Section 301, Section 304, and Section 306 of the Public Health Service Act (42 USC 241, 242b, 242k, and 242m(d)). Further, because of the sensitive nature of the data, the NNIS system has been granted a guarantee of confidentiality for the identities of both the patients and the reporting hospitals under Section 308(d) of the Public Health Service Act. Under these laws, CDC is permitted to analyze, interpret and publish reports of aggregated data, but not release any hospital-specific or patient-specific data without the express written consent of the participating hospital. The data are collected for the purposes of quality improvement and program management only. Hospitals are free to voluntarily release their own NNIS data to anyone they choose, for example, to states or accrediting entities for accountability or for consumer choice purposes. The new, web-based version of NNIS, the NHSN, will accommodate the

desire of a reporting hospital to release its data to organizations it selects, such as state or local health departments or quality improvement organizations.

NNIS measures are valid scientifically and designed to minimize the burden of data collection and reporting to hospitals that agree to participate. The reliability of estimates from NNIS data depends on an assumption that the trained, professional reporters (infection control professionals) using standardized and validated data collection protocols have no incentives to over- or under-estimate their results in a voluntary, confidential system. However, data quality can be improved in either voluntary or mandatory systems by standard processes, such as independent audits and inter-rater reliability checks. The effectiveness of quality improvement in the NNIS system depends upon participants' trust in the data for comparison across facilities or for continuous quality improvement within a facility.

Attributes of a Reporting System:

Major attributes of a reporting system are summarized in Table 1a. Since reporting systems may differ in objectives and priorities, attributes that are highly valued for one system may be less important in another, and tradeoffs may be necessary. For example, a comprehensive system will have the tradeoff of being more complex and burdensome; a voluntary system will encourage honest reporting of infections but allowing healthcare facilities to choose which units and events to report may produce unrepresentative data for inter-facility comparisons. Unfortunately, no one system will incorporate all desirable attributes.

While several reporting systems for specific patient populations and events have been described (36-38), NNIS/NHSN is the only comprehensive national reporting system for HAI. The primary strengths of this system include the use of standardized methods, including widely used event definitions and risk-adjustment methods, and widespread acceptance (Table 2a). Weaknesses include the use of complex and often subjective definitions and relatively burdensome protocols for collecting risk adjustment data; thus, data collection is best focused on selected events in intensive care units and surgical patients. Auditing the results would require full chart review by well-trained personnel and assessment of inter-rater reliability. It is uncertain that these methods will be as applicable to smaller hospitals in the NHSN as they have been for the larger hospitals in NNIS.

In 1998, the Association for Professionals in Infection Control and Epidemiology (APIC) published guidelines for responding to requests for hospital infections data. (28) Though not specific to NNIS data per se, APIC's guidelines explicated several concepts pertaining to the use of these data for inter-hospital comparability that also pertain to data from the NNIS system. These include: the use of trained ICPs and protocols to collect high quality data, the maintenance of a continuous level of intensity of surveillance or monitoring of cases over time, the use of consistent and valid case definitions, the proper identification of denominator populations and reference periods for rate-based data, and finally, the incorporation of risk adjustors for statistical controls of patient-level

confounders related to varying levels of illness among patients coming to the hospital for care.

Table 1a. Candidate Events for Collection in a Public Reporting System on Healthcare-Associated Infections

Event	Notes	Rationale for Inclusion	Potential Limitations
Outcome Measures			
Laboratory-confirmed primary bloodstream infection	90% are device (central line)-associated. Sensitivity*: 85% PPV*: 75%	Frequency, associated cost/morbidity/mortality. Readily identifiable among patients with positive blood culture.	Single-positive blood from skin commensa are difficult to interp
Surgical site infection	50% present after discharge Sensitivity: 67% PPV: 73%	Frequency, associated cost/morbidity/mortality.	Rate heavily depende surveillance intensity completeness of post surveillance. Often identified only "physician diagnosis.
Healthcare-associated pneumonia	In ICUs, usually device (ventilator)-associated. New CDC definition 2003. Sensitivity: 68%** PPV: 49%	Frequency, associated cost/morbidity/mortality.	Definition is complex poor performance cha
Healthcare-associated urinary tract infection (UTI)	In ICUs, usually urinary catheter-associated. Includes symptomatic UTI and asymptomatic bacteruria Sensitivity: 59% PPV: 91%	Most frequent HAI. Readily identifiable among patients with a positive urine culture.	Low associated morbidity/mortality. Asymptomatic bacter function of duration c catheterization.
Clostridium difficile-associated disease	Rates reflect both infection control and appropriate antimicrobial use.	Increasing in frequency. Readily identifiable from laboratory testing.	Differing laboratory t difficile have differin sensitivity/specificity
Antimicrobial (multidrug)-resistant organisms	Antimicrobial resistance is an increasing problem in many healthcare institutions.	Defined by objective laboratory criteria. Associated cost/morbidity/mortality	No consensus metho surveillance or risk a
Process measures			
Surgical antimicrobial prophylaxis	Administering the appropriate antimicrobial agent within 1 hour before the incision has been shown to reduce SSI. Prolonged duration of surgical prophylaxis (>24 hrs) has been associated with increased risk of antimicrobial-resistant SSIs.	Events are common producing more stable rates. Unambiguous target goal (100% compliance). Proven prevention effectiveness. Risk adjustment is unnecessary.	No standardized meth data collection. Manual data collectio tedious.
Central venous catheter insertion practices	Use of maximal barrier precautions during insertion and chlorhexidine skin antisepsis associated with a % and % reduction in CA-BSI rates, respectively .		

Influenza and pneumococcal vaccination of patients and healthcare personnel			
Hand hygiene	Hand hygiene most important strategy for reducing HAIs		

SSI denotes surgical site infections; CA-BSI denotes catheter-associated bloodstream infection.

* Sensitivity and positive predictive values (PPV) from (21)

** Sensitivity and PPV are for the pre-2003 definition of healthcare-associated pneumonia.

Table 2a. Attributes of a Reporting System, and Applicability to CDC Surveillance Systems

Factor	Applicability to NNIS/NHSN
Events included and definitions	Device-associated infections (bloodstream infections, pneumonia, urin infections), surgical site infections, antimicrobial use, antimicrobial res Standard CDC definitions are used
Hospital units and patient populations included	Events on any hospital ward, or any of 40 surgical procedures, may be Specialized definitions and methods for neonates and children.
Event-finding methods	Not specified, left to discretion of facility personnel
Risk adjustment methods	Device-associated infections per 1000 device-days, stratification by u (for high-risk nursery) birthweight; for surgical site infections, operatio rates stratified by the NNIS surgical site infection risk index*
Burden to the hospital	Data collection is burdensome, but some may already be being done
Participation fee (if proprietary system used)	No cost for membership or use of Internet application.
Acceptability to hospitals, which will be higher if familiar methods are used and additional burden is minimized	Methods are familiar and trusted; if scope of reporting is not expanded burden will be acceptable
Representativeness	Uncertain, since participation is voluntary, and hospitals may choose w and events to monitor and for how long.
Desire for comprehensive (i.e., inclusive of all events and hospital venues) vs focused reporting.	Designed for focused reporting, hospital-wide reporting dropped in 199 it was too burdensome and risk adjustment methods were not available
Desire to audit or verify reported data.	Relatively difficult to audit since definitions are somewhat subjective a chart review by trained personnel
Demonstration of accuracy	Favorable evaluation of accuracy (21)
Demonstration of prevention effectiveness	Associated decrease in HAI rates, but causality uncertain
Simplicity of the system. Systems with fewer steps, fewer personnel involved, and that can be summarized	Definitions are complex, but data entry and analysis are relatively simp

more succinctly are more likely to be acceptable and produce accurate data	
Flexibility to revise methods, or to add or delete events	Custom events available. NHSN software is designed to allow modifications and addition of new however, changes must reflect national consensus.
Timely reporting of results	Data immediately available.
Availability of infrastructure, such as hardware and software, standard user interface, standard data format and coding, and appropriate quality checks, and adherence to confidentiality and security standards	All infrastructure provided by CDC.
Capability of integration with other systems	Use of standard information technology methods increase opportunitie integration.
Security, confidentiality, and HIPAA	Uses the CDC Secure Data Network Patient confidentiality guaranteed. Hospital-specific data cannot be released without written consent of th Authorization of individual patients not required under HIPAA to repo NHSN

*More sophisticated methods for risk-adjustment of surgical site infection rates are used for some procedures.

NNIS denotes National Nosocomial Infections Surveillance system; NHSN denotes National Healthcare Safety Network; HIPAA denotes Health Insurance Portability and Accountability Act

Summary

Based on the results of CDC's systematic literature review, HICPAC finds that there is insufficient evidence to recommend for or against public reporting of HAIs as a means to improve HAI prevention and control practices or to prevent the occurrence of HAIs.

In terms of private reporting of HAIs, HICPAC stands by its 1999 recommendation to "report appropriately stratified operation-specific SSI rates to surgical team members" as one of a number of evidence-based recommendations to hospitals to prevent SSIs (2)

In light of the current environment of advocacy for compulsory public reporting of HAIs in hospitals, HICPAC presents this guidance to policy makers based upon an extensive review of selected peer-reviewed articles and studies about public health surveillance methods for tracking HAI rates over time, within and across hospitals with certain characteristics.

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GLOSSARY

- Public health surveillance system: a public health information system for systematically collecting and monitoring targeted patient-level health data. The data can be used for either public or private reporting systems for quality improvement of health services or systems.

- Public reporting system: a system that provides the public with access to information about the quality of health services or systems for the purpose of improving the quality of the services or systems.

- Private reporting system: a system that provides limited access to information about the quality of health services or systems for the purposes of improving the quality of the services or systems. By definition, the general public is not given access to the data voluntarily. The data is typically provided to the organization or health care workers whose performance is being assessed. The provision of this data is intended as an intervention to improve the performance of that entity or person.

- Surveillance: the ongoing, systematic collection, analysis, interpretation, and dissemination of data regarding a health-related event for use in public health action to reduce morbidity and mortality and to improve health (9).

- Nosocomial or hospital-acquired infection: a localized or systemic condition resulting from an adverse reaction to the presence of an infectious agent(s) or its toxin(s) that (a) occurs in a patient admission and (b) there is no evidence that it was present or incubating at the time of admission to the hospital unless the infection was related to a previous admission to the same hospital and (c) meets the criteria for a specific infection site as defined by CDC/NNIS (4).

- Healthcare-associated infection: similar to nosocomial infection but associated with healthcare provided in any setting rather than specifically in a hospital.

- Risk adjustment: A summarizing procedure for a statistical measure in which the effects of differences in composition (e.g., confounding factors) of the populations being compared have been minimized by statistical methods (e.g., stratification, logistic regression) (Last 1988).

- Confounding. The distortion of the apparent effect of an exposure on risk brought about by the association with other factors that can influence the outcome (39). Risk adjustment is performed to minimize the effects of patient co-morbidities and use of invasive devices (the confounding factors) on the estimate of risk for a unit or facility (the exposure).

- Benchmarking: (1) performing inter-facility comparisons, as when comparing the risk (e.g., an HAI rate) at a single unit or facility to the risk at other units or facilities; (2) the best or most desirable value of a variable (39).

- Outcomes. All the possible results that may stem from exposure to a causal factor, or from preventive or therapeutic interventions (39); e.g., mortality, cost, or development of an HAI.

- Process measure. A measure of compliance with recommended infection control or other practices, e.g., use of hand washing.

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